

# Autocomplete

A powerful and flexible autocomplete input component that provides intelligent search and selection capabilities. Features include single and multi-select modes, custom option templates, loading states, keyboard navigation, and comprehensive accessibility support. Perfect for search interfaces, form inputs, and data selection workflows.

## How to use

### Basic Usage

The most basic implementation with a simple array of options and default single-select behavior.

```
import { AvaAutocompleteComponent } from "@aava/play-core";
```

### Multi-Select Mode

Enable multi-select functionality to allow users to select multiple options, displayed as removable tags.

```

import { Component } from "@angular/core";
import {
  AvaAutocompleteComponent,
  AvaAutocompleteOption,
} from "@aava/play-core";

@Component({
  selector: "app-autocomplete-basic",
  standalone: true,
  imports: [AvaAutocompleteComponent],
  template: `
    <div class="demo-container">
      <h3>Basic Autocomplete</h3>

      <ava-autocomplete
        [options]="countries"
        placeholder="Search for a country..."
        label="Country"
        (optionSelected)="onOptionSelected($event)"
        (valueChange)="onValueChange($event)"
      ></ava-autocomplete>

      <div class="demo-output" *ngIf="selectedCountry">
        <p><strong>Selected:</strong> {{ selectedCountry }}</p>
      </div>
    </div>
  `,
  styles: [
    `
    .demo-container {
      max-width: 400px;
      margin: 20px 0;
    }

    .demo-output {
      margin-top: 20px;
      padding: 12px;
      background: #f8f9fa;
      border-radius: 6px;
      border-left: 4px solid #007bff;
    }
  `,
  ],
})
export class AutocompleteBasicDemo {
  countries: AvaAutocompleteOption[] = [
    { label: "United States", value: "us" },
    { label: "Canada", value: "ca" },
    { label: "United Kingdom", value: "uk" },
    { label: "Germany", value: "de" },
    { label: "France", value: "fr" },
    { label: "Italy", value: "it" },
    { label: "Spain", value: "es" },
  ],
}

```

```

    { label: "Netherlands", value: "nl" },
    { label: "Belgium", value: "be" },
    { label: "Switzerland", value: "ch" },
    { label: "Austria", value: "at" },
    { label: "Sweden", value: "se" },
    { label: "Norway", value: "no" },
    { label: "Denmark", value: "dk" },
    { label: "Finland", value: "fi" },
  ];

  selectedCountry: string = "";

  onOptionSelected(option: AvaAutocompleteOption) {
    console.log("Option selected:", option);
  }

  onValueChange(value: string) {
    console.log("Value changed:", value);
    this.selectedCountry = value;
  }
}

```

## Multi-Select Features

- Tag Display : Selected options appear as removable tags below the input
- Tag Customization : Full control over tag appearance, colors, and behavior
- Duplicate Prevention : Automatically prevents duplicate selections
- Bulk Removal : Individual tag removal with click or keyboard
- Clear All : Option to clear all selections at once

## Options with Icons

Enhance autocomplete options with meaningful icons for better visual context and user recognition.

```

import { Component } from "@angular/core";
import {
  AvaAutocompleteComponent,
  AvaAutocompleteOption,
} from "@aava/play-core";

@Component({
  selector: "app-autocomplete-multi-select",
  standalone: true,
  imports: [AvaAutocompleteComponent],
  template: `
    <div class="demo-container">
      <h3>Multi-Select Autocomplete</h3>

      <ava-autocomplete
        [options]="skills"
        [multi]="true"
        placeholder="Search and select skills..."
        label="Skills"
        tagColor="primary"
        tagVariant="filled"
        tagSize="sm"
        tagPill="true"
        tagRemovable="true"
        (optionSelected)="onOptionSelected($event)"
        (valueChange)="onValueChange($event)"
      ></ava-autocomplete>

      <div class="demo-output" *ngIf="selectedSkills.length">
        <p><strong>Selected Skills:</strong></p>
        <ul>
          <li *ngFor="let skill of selectedSkills">{{ skill }}</li>
        </ul>
      </div>
    </div>
  `,
  styles: [
    `
    .demo-container {
      max-width: 500px;
      margin: 20px 0;
    }

    .demo-output {
      margin-top: 20px;
      padding: 12px;
      background: #f8f9fa;
      border-radius: 6px;
      border-left: 4px solid #28a745;
    }

    .demo-output ul {
      margin: 8px 0;
    }
  `
  ]
})

```

```

        padding-left: 20px;
    }

    .demo-output li {
        margin: 4px 0;
    }
},
],
})
export class AutocompleteMultiSelectDemo {
    skills: AvaAutocompleteOption[] = [
        { label: "Angular", value: "angular" },
        { label: "React", value: "react" },
        { label: "Vue.js", value: "vue" },
        { label: "TypeScript", value: "typescript" },
        { label: "JavaScript", value: "javascript" },
        { label: "HTML5", value: "html5" },
        { label: "CSS3", value: "css3" },
        { label: "Sass", value: "sass" },
        { label: "Node.js", value: "nodejs" },
        { label: "Python", value: "python" },
        { label: "Java", value: "java" },
        { label: "C#", value: "csharp" },
        { label: "PHP", value: "php" },
        { label: "Ruby", value: "ruby" },
        { label: "Go", value: "go" },
        { label: "Rust", value: "rust" },
        { label: "Docker", value: "docker" },
        { label: "Kubernetes", value: "kubernetes" },
        { label: "AWS", value: "aws" },
        { label: "Azure", value: "azure" },
        { label: "Google Cloud", value: "gcp" },
        { label: "MongoDB", value: "mongodb" },
        { label: "PostgreSQL", value: "postgresql" },
        { label: "MySQL", value: "mysql" },
        { label: "Redis", value: "redis" },
    ];

    selectedSkills: string[] = [];

    onOptionSelected(option: AvaAutocompleteOption) {
        console.log("Option selected:", option);
    }

    onValueChange(values: string[]) {
        console.log("Values changed:", values);
        this.selectedSkills = values;
    }
}

```

## Icon Features

- Option Icons : Add icons to individual options for visual distinction
- Start Icon : Include a leading icon in the input field itself
- Icon Customization : Control icon colors, sizes, and positioning
- Consistent Theming : Icons inherit theme colors automatically
- Accessibility : Proper ARIA labels for icon descriptions

## **Async States**

Display loading indicators while fetching options from asynchronous sources.

```

import { Component } from "@angular/core";
import {
  AvaAutocompleteComponent,
  AvaAutocompleteOption,
} from "@aava/play-core";

@Component({
  selector: "app-autocomplete-icons",
  standalone: true,
  imports: [AvaAutocompleteComponent],
  template: `
    <div class="demo-container">
      <h3>Autocomplete with Icons</h3>

      <ava-autocomplete
        [options]="socialPlatforms"
        placeholder="Search social platforms..."
        label="Social Platform"
        startIcon="search"
        startIconColor="#6b7280"
        startIconSize="18px"
        (optionSelected)="onOptionSelected($event)"
        (valueChange)="onValueChange($event)"
      ></ava-autocomplete>

      <div class="demo-output" *ngIf="selectedPlatform">
        <p><strong>Selected Platform:</strong> {{ selectedPlatform }}</p>
      </div>
    </div>
  `,
  styles: [
    `
    .demo-container {
      max-width: 400px;
      margin: 20px 0;
    }

    .demo-output {
      margin-top: 20px;
      padding: 12px;
      background: #f8f9fa;
      border-radius: 6px;
      border-left: 4px solid #ff6b35;
    }
  `,
  ],
})
export class AutocompleteIconsDemo {
  socialPlatforms: AvaAutocompleteOption[] = [
    { label: "Facebook", value: "facebook", icon: "facebook" },
    { label: "Twitter", value: "twitter", icon: "twitter" },
    { label: "Instagram", value: "instagram", icon: "instagram" },
    { label: "LinkedIn", value: "linkedin", icon: "linkedin" },
  ],
}

```

```

    { label: "YouTube", value: "youtube", icon: "youtube" },
    { label: "TikTok", value: "tiktok", icon: "music" },
    { label: "Snapchat", value: "snapchat", icon: "camera" },
    { label: "Pinterest", value: "pinterest", icon: "heart" },
    { label: "Reddit", value: "reddit", icon: "message-circle" },
    { label: "Discord", value: "discord", icon: "message-square" },
    { label: "Slack", value: "slack", icon: "message-circle" },
    { label: "WhatsApp", value: "whatsapp", icon: "phone" },
    { label: "Telegram", value: "telegram", icon: "send" },
    { label: "GitHub", value: "github", icon: "github" },
    { label: "Stack Overflow", value: "stackoverflow", icon: "help-circle" },
  ];

  selectedPlatform: string = "";

  onOptionSelected(option: AvaAutocompleteOption) {
    console.log("Option selected:", option);
  }

  onValueChange(value: string) {
    console.log("Value changed:", value);
    this.selectedPlatform = value;
  }
}

```

## Async Features

- Debounced Requests : Configurable debounce to prevent excessive API calls
- Loading Text : Customizable loading message
- State Management : Automatic loading state handling
- Error Handling : Graceful error state display

## Accessibility

Built-in accessibility features ensuring WCAG compliance and inclusive user experience.

```

import { Component, OnInit } from "@angular/core";
import {
  AvaAutocompleteComponent,
  AvaAutocompleteOption,
} from "@aava/play-core";
import { Observable, of, delay } from "rxjs";

@Component({
  selector: "app-autocomplete-loading",
  standalone: true,
  imports: [AvaAutocompleteComponent],
  template: `
    <div class="demo-container">
      <h3>Autocomplete with Loading States</h3>

      <ava-autocomplete
        [options]="asyncOptions"
        [loading]="isLoading"
        placeholder="Search users (simulated API delay)..."
        label="Users"
        [debounce]="300"
        [minLength]="2"
        (optionSelected)="onOptionSelected($event)"
        (valueChange)="onValueChange($event)"
      ></ava-autocomplete>

      <div class="demo-output" *ngIf="selectedUser">
        <p><strong>Selected User:</strong> {{ selectedUser }}</p>
      </div>

      <div class="demo-info">
        <p>
          <small>
            >■ Type at least 2 characters to trigger the simulated API call
            with loading state.</small>
          </p>
      </div>
    </div>
  `,
  styles: [
    `
    .demo-container {
      max-width: 400px;
      margin: 20px 0;
    }

    .demo-output {
      margin-top: 20px;
      padding: 12px;
      background: #f8f9fa;
      border-radius: 6px;
      border-left: 4px solid #17a2b8;
    }
  `
  ],
})

```

```

    }

    .demo-info {
        margin-top: 16px;
        padding: 8px 12px;
        background: #e7f3ff;
        border-radius: 4px;
        border-left: 3px solid #007bff;
    }

    .demo-info p {
        margin: 0;
        color: #0056b3;
    }
},
],
})
export class AutocompleteLoadingDemo implements OnInit {
    asyncOptions: Observable<AvaAutocompleteOption[]> = of([]);
    isLoading = false;
    selectedUser: string = "";

    private allUsers: AvaAutocompleteOption[] = [
        { label: "John Doe", value: "john.doe@example.com" },
        { label: "Jane Smith", value: "jane.smith@example.com" },
        { label: "Mike Johnson", value: "mike.johnson@example.com" },
        { label: "Sarah Wilson", value: "sarah.wilson@example.com" },
        { label: "David Brown", value: "david.brown@example.com" },
        { label: "Emily Davis", value: "emily.davis@example.com" },
        { label: "Michael Miller", value: "michael.miller@example.com" },
        { label: "Lisa Garcia", value: "lisa.garcia@example.com" },
        { label: "Robert Martinez", value: "robert.martinez@example.com" },
        { label: "Jennifer Anderson", value: "jennifer.anderson@example.com" },
        { label: "William Taylor", value: "william.taylor@example.com" },
        { label: "Amanda Thomas", value: "amanda.thomas@example.com" },
        { label: "James Jackson", value: "james.jackson@example.com" },
        { label: "Michelle White", value: "michelle.white@example.com" },
        { label: "Christopher Harris", value: "christopher.harris@example.com" },
    ];

    ngOnInit() {
        // Simulate async options with loading state
        this.asyncOptions = new Observable((observer) => {
            observer.next([]);
        });
    }

    onOptionSelected(option: AvaAutocompleteOption) {
        console.log("Option selected:", option);
    }

    onValueChange(value: string) {
        console.log("Value changed:", value);
    }
}

```

```

this.selectedUser = value;

// Simulate API call with loading state
if (value.length >= 2) {
  this.isLoading = true;

  // Simulate API delay
  setTimeout(() => {
    const filteredUsers = this.allUsers.filter((user) =>
      user.label.toLowerCase().includes(value.toLowerCase())
    );

    this.asyncOptions = of(filteredUsers).pipe(delay(500));
    this.isLoading = false;
  }, 300);
} else {
  this.asyncOptions = of([]);
}
}
}

```

## Accessibility Features

- Keyboard Navigation : Full arrow key, Enter, Escape, and Tab support
- ARIA Attributes : Proper aria-autocomplete , aria-controls , and aria-activedescendant
- Screen Reader Support : Descriptive labels and state announcements
- Focus Management : Clear visual focus indicators
- High Contrast : Enhanced visibility in high contrast mode
- Reduced Motion : Respects user motion preferences

## API Reference

### Inputs

Property	Type	Default	Description
options	AvaAutocompleteOption[]   Observable<AvaAutocompleteOption>	[]	Array or Observable of autocomplete options
placeholder	string	"	Placeholder text for the input field

Property	Type	Default	Description
label	string	"	Label for the input field
error	string	"	Error message to display
helper	string	"	Helper text below the input
loading	boolean	false	Show loading state
disabled	boolean	false	Disable the autocomplete
clearable	boolean	true	Show clear button when input has value
minLength	number	1	Minimum characters to trigger search
maxOptions	number	10	Maximum number of options to display
noResultsText	string	'No results found'	Text shown when no options match
debounce	number	200	Debounce time for input changes (ms)
optionTemplate	TemplateRef<unknown>	undefined	Custom template for option display
multi	boolean	false	Enable multi-select mode
fullWidth	boolean	false	Make the component full width
required	boolean	false	Mark field as required
readonly	boolean	false	Make input readonly

Property	Type	Default	Description
name	string	"	Name attribute for the input
id	string	"	ID attribute for the input
ariaLabel	string	"	ARIA label for accessibility
ariaLabelledby	string	"	ARIA labelledby attribute
ariaDescribedby	string	"	ARIA describedby attribute

## Tag Properties (Multi-Select)

Property	Type	Default	Description
tagColor	'default'   'primary'   'success'   'warning'   'error'   'info'   'custom'	'default'	Color theme for selected tags
tagVariant	'filled'   'outlined'	'filled'	Visual variant for tags
tagSize	'sm'   'md'   'lg'	'sm'	Size of the tags
tagPill	boolean	false	Use pill shape for tags
tagRemovable	boolean	true	Allow tags to be removed
tagDisabled	boolean	false	Disable tag interactions
tagIcon	string	"	Icon to display in tags

Property	Type	Default	Description
tagIconPosition	'start'   'end'	'start'	Position of icon in tags
tagAvatar	string	"	Avatar image URL for tags
tagCustomStyle	Record<string, string>	{}	Custom styles for tags
tagCustomClass	string	"	Custom CSS class for tags
tagIconColor	string	"	Custom color for tag icons

## Icon Properties

Property	Type	Default	Description
startIcon	string	"	Icon name for the start of the input
startIconColor	string	"	Color for the start icon
startIconSize	string	'16px'	Size of the start icon

## Outputs

Event	Type	Description
optionSelected	EventEmitter<AvaAutocompleteOption>	Emitted when an option is selected
valueChange	EventEmitter<string   string[]>	Emitted when the input value changes
cleared	EventEmitter<void>	Emitted when the input is cleared

## AvaAutocompleteOption Interface

## Methods

Method	Parameters	Return Type	Description
onInput(event: Event)	event: Event	void	Handle input changes and trigger search
onFocus()	-	void	Handle focus events
onBlur()	-	void	Handle blur events
onOptionClick(option: AvaAutocompleteOption)	option: AvaAutocompleteOption	void	Handle option selection
onClear()	-	void	Clear the input and selections
onKeyDown(event: KeyboardEvent)	event: KeyboardEvent	void	Handle keyboard navigation
removeSelectedOption(opt: AvaAutocompleteOption)	opt: AvaAutocompleteOption	void	Remove a selected option (multi-select)

## CSS Custom Properties

Property	Default	Description
--autocomplete-background	Dynamic	Background color for dropdown
--autocomplete-border-color	Dynamic	Border color for dropdown
--autocomplete-border-width	Dynamic	Border width for dropdown
--autocomplete-border-radius	Dynamic	Border radius for dropdown
--autocomplete-shadow	Dynamic	Box shadow for dropdown
--autocomplete-option-color	Dynamic	Text color for dropdown options

Property	Default	Description
--autocomplete-option-hover-bg	Dynamic	Background color for hovered options
--autocomplete-option-hover-color	Dynamic	Text color for hovered options
--autocomplete-option-icon-color	Dynamic	Color for option icons
--autocomplete-empty-color	Dynamic	Color for "no results" text
--autocomplete-chip-bg	Dynamic	Background color for multi-select tags
--autocomplete-chip-color	Dynamic	Text color for multi-select tags
--autocomplete-chip-remove-color	Dynamic	Color for tag remove buttons

## Accessibility Guidelines

### Keyboard Navigation

- Tab : Navigate to autocomplete and move between interactive elements
- Arrow Down/Up : Navigate through dropdown options
- Enter : Select highlighted option
- Escape : Close dropdown without selection
- Backspace : In multi-select, remove last selected option
- Space : Select highlighted option (alternative to Enter)

### Screen Reader Support

- Use descriptive labels that clearly indicate the autocomplete purpose
- Provide context about the total number of options available
- Announce option changes and selection updates
- Include loading state announcements
- Use appropriate ARIA attributes for state communication

### Visual Design

- Maintain sufficient color contrast (4.5:1 minimum) for all states
- Provide clear focus indicators on interactive elements
- Ensure dropdown options meet minimum touch target size (44px)
- Use consistent visual hierarchy across all states
- Support high contrast and reduced motion preferences

## **Best Practices**

## **Design Guidelines**

- Clear Labels : Use descriptive labels that explain the autocomplete purpose
- Appropriate Placeholders : Provide helpful placeholder text with examples
- Option Grouping : Group related options when dealing with large datasets
- Loading Feedback : Always show loading states for async operations
- Error Handling : Provide clear error messages and recovery options
- Responsive Design : Ensure dropdown adapts to different screen sizes

## **Performance**

- Debouncing : Use appropriate debounce times to prevent excessive API calls
- Option Limiting : Limit displayed options to prevent performance issues
- Lazy Loading : Consider lazy loading for very large option sets
- Memory Management : Clean up subscriptions and event listeners
- Virtual Scrolling : Implement virtual scrolling for thousands of options
- Caching : Cache frequently accessed options to improve response times

## **Form Integration**

- Validation : Implement proper form validation for required fields
- Error States : Display validation errors clearly and consistently
- Default Values : Handle default values appropriately in both single and multi-select
- Form Submission : Ensure selected values are properly included in form data
- Accessibility : Maintain proper form accessibility throughout the component lifecycle

## **Multi-Select Considerations**

- Tag Management : Provide clear ways to remove individual tags
- Bulk Operations : Consider bulk remove functionality for many selections
- Tag Overflow : Handle cases where many tags exceed available space
- Keyboard Navigation : Ensure proper keyboard navigation through tags

- Visual Feedback : Provide clear visual feedback for tag interactions